

What is claimed is:

1. A method of protecting a patient from embolization during a percutaneous procedure on a vessel, comprising:

5 providing a guidewire having proximal and distal ends, a proximal and a distal region, an expandable filter associated with the distal region, and a removable sheath which covers the expandable filter and is slidable over the guidewire;

10 providing a balloon catheter having an inflatable balloon associated with a distal region of the balloon catheter;

introducing the distal end of the guidewire into the patient's vessel with the sheath covering the expandable filter, and positioning the filter downstream of a treatment site, wherein the sheath and guidewire cross the treatment site;

15 sliding the sheath toward the proximal end of the guidewire and removing the sheath from the vessel, wherein the expandable filter is uncovered;

deploying the filter;

advancing over the guidewire a balloon catheter to the treatment site;

20 and

inflating the balloon at the treatment site, wherein embolic material is generated and captured before the expandable filter is removed from the patient's vessel.

25 2. The method of claim 1 wherein the expandable filter includes a filter mesh.

3. The method of claim 1 wherein the filter is deployed before the balloon catheter is advanced over the guidewire.

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4. The method of claim 1 wherein the filter is deployed after the balloon catheter is advanced over the guidewire.

5 5. The method of claim 1 wherein the filter is deployed before the balloon is inflated.

6. The method of claim 4 wherein the filter is deployed before the balloon is inflated.

10 7. A percutaneous system having filter and balloon catheter deployment capabilities, comprising:

a guidewire having proximal and distal ends, a proximal and distal region, and an expandable filter associated with the distal region;

15 a sheath which is shaped to receive the guidewire and retain the filter in a contracted condition, and to slidably release the filter to an expanded condition when the sheath moves toward the proximal end of the guidewire;

20 a balloon catheter having a proximal and a distal end, a proximal and a distal region, and a lumen which slidably receives the guidewire, the balloon catheter having an inflatable balloon associated with the distal region, the balloon having a first diameter which permits intraluminal delivery of the balloon catheter into a vessel, and having a second expanded diameter adapted to substantially engage a wall of the vessel; and

25 wherein, during use, the guidewire is positioned across a region of stenosis within the vessel, the filter is expanded, the balloon is inflated within the region of stenosis and wherein embolic material is generated and captured before the expandable filter is removed from the vessel.

8. The system of claim 7 wherein the filter is self-expanding.

30 9. The system of claim 7 wherein the filter comprises nitinol material.